
STS-123 MOD FRR

FLIGHT DESIGN AND DYNAMICS

January 9, 2008

Steven K. Staas / 281-483-4696

David Tee / 281-483-0084

Jennifer Mendeck / 281-483-8020

David Mayhew / 281-483-2629

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Shuttle CoFR Status Summary

MOD Requirements Codes *	DM	USA FDD
CRITICAL PROC./APPL	G	G
NON-CRITICAL PROC/APPL	G	G
FD-TRAJECTORY	N/A	G
FD-CONSUMABLES (PROP)	N/A	G
FD-ANALYST CERT	N/A	G
FD-CTF	N/A	G
FDF	G	G
EMCC	G	G
CREW TRAINING (RNDZ)	G	N/A
CERTIFIED FLIGHT CONTROLLERS	Y	Y
CERTIFIED INSTRUCTORS (RNDZ)	G	N/A
FTP-NEW OPS	G	G
FLIGHT ANOMALY RES	G	G
ANOMALY-PROCEDURE	G	Y
EX/AI FROM PRIOR READINESS REVIEW	None	None
NO CONSTRAINTS	None	None
LEVEL II (PROGRAM) ACTIONS	None	None
MISSION REQUIREMENTS	G	G
CMD PROC	G	G
EXCEPTION RESOLUTION	G	None
FPPP REQ MET	G	G
CONTRACTOR PROCESS INSIGHT	G	N/A

G	Ready to support flight or standard open work
Y	Non-standard open work with expected resolution
R	Open work without expected resolution
N/A	Does not apply
None	None identified

* as defined in DA8-020 "MOD Certification of Flight Readiness Process" document

Mission Overview Summary

Launch/Landing Times	Date	GMT	EST	
• Launch Window Open	Feb. 14, 2008	16:52:51	11:52:51	(hh:mm:ss)
• Launch Window Close		17:02:20	12:02:20	(hh:mm:ss)
• Landing Time (KSC)	Feb. 29, 2008	10:01:00	05:01:00	(hh:mm)

- First Stage Design Criteria DOLILU II / High Q
- Insertion Altitude/Inclination 122 nm / 51.6 deg

- **APM** (above a 5 minute window centered at in-plane)

- I-load Design 1558 lbs
- Projected APM* 1254 lbs

- * Based on 12/18/07 Green Book

- Launch hold capability inside of drainback is dependent upon actual DOL performance. Abort coverage has sufficient overlap from liftoff to MECO.
-

Propellant Summary

Propellant Summary	FRCS (lbm)	ARCS (lbm)	OMS (lbm)
Loadings	1912	4970	22761
FRR Design Margins **	348	80 (combined ARCS/OMS)	

** Assumptions: STS-123 Summary Flight Plan, FRR Cycle Trajectory Inputs - 185 nm RNDZ, 119 sec OMS Assist, 2 mated water dumps, early inspection, and 2 maneuvers for mated Late Inspection

Significant Requirements Changes Since Design Baseline

- **~800 lbm. reduction in Aft Fuselage Ballast**
 - Fluid ballasting used for increased manifesting capability and Ascent Performance Margin (APM)
- **220 lbm. decrease in middeck control weight**
 - Maintain acceptable APM and Xcg margins
- **Addition of DTO848**
 - Starboard Tool Stowage Assembly (TSA) added
 - Fifth scheduled EVA added

Significant Mission Firsts and Unique Items

- **First Use of PISCES (Platform Independent Software Components for the Exploration of Space)**
- **First Use of VVTaTo (Visiting Vehicle Targeting Tool)**
 - Application Dependent on the PISCES Certified Libraries
 - VVTaTo and PISCES are applications configured by the DM Civil Servant GAs. VVTaTo is executed from the VVO DNAV and utilizes PISCES runtime libraries
- **Edwards Temporary Runway**
 - All Navigation products reflect appropriate changes for STS-123
 - Estimated operational date of April 30, 2008
- **ATV First Launch: ATV1 and STS-123 are currently scheduled to be in orbit at the same time**
- **STS-123 Block Update**
 - ET/SRB Attach Point Coordinate Change (S052158CTR1) – fixes error in load indicator calculations because of wrong coordinates. Only affects 4 DOL indicators, none of which were at risk of breaking a limit
 - DOLILU Block Update Changes – STS-123 (S052550NR) – Minor DOL script and database updates

Significant Mission Firsts and Unique Items - Concluded

- Late Inspection is during mated operations using a total of 92.9 lbm FRCS & 108.5 lbm ARCS Shuttle propellant for 2 of the maneuvers.
- Program Modification to Level B GR&C, NSTS-21075, Section 6.1.3 for STS-123 to assume the following payload bay configuration for computing Xcg and ballasting requirements for the Worst-Case-Forward (WCF) scenario:
 - JEM ELM-PS is deployed
 - SLP is in the PLB, without the SPDM (retrieve configuration)
 - OBSS has been transferred to the ISS
 - All sidewall-mounted payloads and ORUs are in the PLB
 - This non-standard definition of the WCF scenario results in less conservatism in pre-flight ballasting computation.
 - This case reflects the mission timeline rather than a literal “WCF” hardware configuration that is not planned to occur during the mission
 - Results in increased APM, which translates to more weight-to-orbit capability
 - No change or constraints to real-time ops: FDO and PROP maintain mass properties/ballast data continually during the mission

Deviations, Exceedances and Anomalies

- **Exceedances/Deviations**

- **Contingency Abort Black Zone Assessment was not required**

- **Liftoff mass properties did not exceed the NSTS-07700 Vol. III criteria of weight > 259,000 lbm. and Xcg > 1115 in.**
- **FRR Cycle liftoff weight = 266,538 lbm., Xcg = 1112.8 in.**

- **No Dock PLS downweight exceeds the NEOM downweight limit**

- **Preflight thermal analysis is not required**
- **Real-time analysis will be performed if required**
- **Mission-specific flight rule has been submitted**

Deviations, Exceedances and Anomalies - Concluded

- **Previous Mission Anomalies**

- FOV-1 work-arounds in place since STS-121 are still in effect

- Wallops C-band high-speed refraction correction multipliers set to zero by Nav (documented in console procedure AEGNAV-5A)

- Post-MECO filter degradation for December launch expected to be ~17 fps (radial)
- Reduces likelihood of using ground filter, although onboard and GPS available

- **Previous mission (STS-120)**

- None affecting Flight Design

- **Previous flight of vehicle (OV-105, STS-118)**

- None affecting Flight Design

- **Significant ARs**

- None

- **NCRs**

- None

- **Open Risk Assessments**

- None

Special Topics

- None

Issues and Concerns

- None

Exceptions and Standard Open Work

- **Exceptions**
 - **None**
- **Standard**
 - **All open work is scheduled to be completed per standard flight template**
 - **Open work table in backup pages**

Non-Standard Open Work

- **TAO Certification** 01/14/08
- **DOL OPS 2 Operator Certification** 01/24/08
- **DOL Lead Operator Certification** STS-122 launch
- **Landing Analyst Certification** 01/24/08
- **Loads 6.1 Flight Critical Certification Review** TBD
- **DDS element update** TBD
- **NSTS-08329 Vol. VI update** TBD
- **PRD update for range balloons** TBD
- **DOL Block Update to be completed by approval at SICB** TBD

STS-324 Rescue Mission Status

- **FDD compared the expected OV-103 configuration to the existing suite of as-built STS-322 products and I-Loads**
 - **No FDD I-Load updates were required**
 - **Flight Design identified the need to update the flight FDF to include EDW temporary runway data**
 - **Will include updates post-callup if required**
 - **No other facility updates were identified**
- **All pre-callup production has been completed**
- **Console staffing will be defined post callup – no issues anticipated**
- **MOD developed post-callup production schedule will be implemented, if required**
- **Baselined launch date is currently NET 4/10/2008**

Flight Design and Dynamics Readiness Accountability Statement

☐ Software : All software used to create mission products, and MCC software required for mission support including related ISS software and designated critical processors meets generic and mission-specific Program requirements, and is maintained under configuration control in accordance with the FDD Software Management Plan.

☐ Flight Software : All flight software Principal Functions (PFs) owned by FDD are ready for flight. All Discrepancy Reports and Program Notes and Waivers related to USA-owned PFs have been reviewed and appropriately dispositioned for this flight.

☐ Anomaly Resolution : All anomalies that could impact mission support have been closed, or have accepted and approved work-arounds in place.

☐ Production : All flight reconfiguration products and real-time console support products meet generic and mission-specific Program requirements.

☐ Operations : All mission support personnel are or will be certified and current prior to supporting mission related activities.

The FDDOC Flight Readiness Review Process Plan (USA009229) and the Flight Operations Flight Preparation and Readiness Plan (USA008977; Appendix D and E) which defines the processes and products required for a successful flight have been executed and the applicable Program CoFR requirements satisfied.

The undersigned certify that the Flight Design and Dynamics Department, upon satisfactory resolution of any noted exceptions, is ready to support flight STS-123.

Flight Design and Dynamics	A. F. Najarian Director	Original signed by D. J. Brockway for A. F. Najarian <small>signature</small>	12/18/07 <small>date</small>
Flight Design and Dynamics Software	F. M. Hamilton Software Project Manager	Original signed by F. M. Hamilton <small>signature</small>	12/20/07 <small>date</small>
Ascent/Descent Flight Design	D. J. Brockway Manager	Original signed by D. J. Brockway <small>signature</small>	12/18/07 <small>date</small>
Orbit Flight Design	R. M. Hill Manager	Original signed by R. M. Hill <small>signature</small>	12/18/07 <small>date</small>
Navigation & Flight Design Integration	G. E. Schrage Manager	Original signed by D. K. Mains for G. E. Schrage <small>signature</small>	12/18/07 <small>date</small>
Trajectory Operations & Software Development	F. M. Hamilton Manager	Original signed by F. M. Hamilton <small>signature</small>	12/20/07 <small>date</small>
Management & Engineering Services	A. T. McDowell Manager	Original signed by A. T. McDowell <small>signature</small>	12/19/07 <small>date</small>

Flight Design and Dynamics Declaration of Compliance with CoFR Endorsement Requirements for STS-123 Flight Readiness

- Software** : All software used to create mission products, and MCC software required for mission support including related ISS software and designated critical processors meets generic and mission-specific Program requirements, and is maintained under configuration control in accordance with the FDD Software Management Plan.
- Flight Software** : All flight software Principal Functions (PFs) owned by FDD are ready for flight. All Discrepancy Reports and Program Notes and Waivers related to USA-owned PFs have been reviewed and appropriately dispositioned for this flight.
- Anomaly Resolution** : All anomalies that could impact mission support have been closed, or have accepted and approved work-arounds in place.
- Production** : All flight reconfiguration products and real-time console support products meet generic and mission-specific Program requirements.
- Operations** : All mission support personnel are or will be certified and current prior to supporting mission related activities.

Requirements Compliance: All requirements defined by the documents below (as required by the FIDP Compliance Matrix) have been or will be satisfied prior to flight.

DOCUMENT	VERSION	DATE
Flight Implementation Data Pack (FIDP) - Generic	GEN-JG	December 14, 2007
Flight Implementation Data Pack (FIDP) - Flight Specific	123-BASE-Z	December 11, 2007

Waivers & Exceptions:

None

The FDDOC Flight Readiness Review Process Plan (USA009229) and the Flight Operations Flight Preparation and Readiness Plan (USA008977; Appendix D and E) which defines the processes and products required for a successful flight have been executed and the applicable Program CoFR requirements satisfied.

Original signed by D. J. Brockway for A. F. Najarian 12/20/0707

Director	Date
Flight Design & Dynamics Operations Center	

DM Flight Design and Dynamics (Trajectory Operations)

Significant Mission Firsts and Unique Items

ATV Launch

- **It is possible that ATV1 and STS-123 will be in orbit free-flight at the same time**
 - If ATV is in free-flight while Shuttle is in orbit, it is proposed that ATV will stationkeep at about ~2000 km on the +Vbar
 - ESA has proposed that ATV always approach their S-1/2 point, (-39, 0, 5) km, regardless of Shuttle operations
 - This could be very challenging on day-of rendezvous and launch day
 - Techniques that could be used to deconflict ATV-Shuttle concurrent operations include modification of maneuvers, extra maneuvers, rendezvous delay, and launch hold
 - ISS may not be able to reboost after ATV launch without jeopardizing ATV mission success
 - Should ATV be phasing during Shuttle rendezvous or deorbit, we will need to check to be sure the two don't conflict.
 - Shuttle separation and orbit adjust may need to be modified to account for ATV avoidance

Deviations, Exceedances and Anomalies

- STS-122 actions will be addressed post-flight

Special Topics

FD3 RENDEZVOUS

- **STS-123 phasing is currently very uncertain due to the STS-122 launch delay**
 - **At least 3 weeks between STS-122 landing and STS-123 launch is needed to allow time to plan and execute a reboost that will have sufficient control to set up FD3 phasing for STS-123.**
 - **The close timing of launch dates for STS-122, STS-123, 28P, Soyuz, and STS-124 is creating a challenging environment for satisfying conditions for all these missions.**
 - **These factors are creating a higher than normal chance that long periods of launch into FD3 can not be created for STS-123.**

Special Topics

GPS

- **STS-123 is 2nd Flight of 3-string GPS and the last GPS ramp-up flight**
 - Plan is to take GPS to PASS only in MM301 and MM304 post confirmation with high-speed tracking
 - BFS will be managed via state vector transfers (same as on STS-118)
 - For aborts, GPS will be taken to both PASS and BFS
 - DA8 is interested in taking GPS to PASS in OPS 3 following FCS C/O for approximately 10 minutes (same as on STS-118)

Issues and Concerns

- **Plans for Shuttle/ATV concurrent ops are very immature**
 - **ATV mission profile is still changing**

Exceptions and Standard Open Work

- **Exceptions**
 - **None**
- **Standard Open Work (complete listing in backup charts)**
 - **All open work is scheduled to be completed per standard flight template**
 - **No issues have been identified**

Non-Standard Open Work

- **Flight Controller Certifications**

- **Entry FDO: Expected 1/10/07 (paperwork only)**
- **ARD Support: Expected 1/10/07 (paperwork only)**
- **ALP LSO: Expected 1/24/07 (STS-122 OJT)**
- **Orbit TRAJ: TBD (final cert not yet scheduled)**

- **ATV/Shuttle concurrent ops**

- **JOP to discuss ATV/Shuttle issues in January**

STS-123 Flight Design & Dynamics Division Readiness Statement

The Flight Design and Dynamics Division has performed the reviews necessary to assess the flight readiness relating to flight design requirements definition, crew and flight controller rendezvous training, and trajectory operations. We have determined all applicable responsibilities acceptable for flight pending closure of the identified open work and issues.

Original signed by R. L. Schaf for

Barbara A. Conte

Chief, Flight Design Requirements and Integration Branch

Original signed by G. T. Oliver

Gregory T. Oliver

Chief, Flight Design and Dynamics Division

**As compiled by: FDO/J. Mendeck
FDM/S. Staas**

Back-Up

- **Flight Readiness Open Work**
- **Launch Time Summary**
- **Launch Window (separate file)**
- **Training Certification Letter**

Flight Readiness Open Work

Item	Responsible	Due Date	Closed	Closure Rationale
USA Flight Design Standard Open Work:				
PROP37 SODB Volume II Amendment	PROP	1/4/08	12/20/07	Product delivered
DATA43 FDD FRR Data Pack	FDM	1/8/08		
FSW Verification Test Results Review	Orbit	1/8/08		
FSW Verification Test Results Review	ADFD	1/15/08		
CM FOE L-30 day audit	Bedford	1/15/08		
DATA45 FDD FSW PF Sign-off	FDM	1/16/08		
ONOR29B RNDZ Launch Target Data	Orbit	1/16/08		
PROP06 OMRSD OMS/RCS	PROP	1/17/08		
PROP07 Abort Propellant Dump Tagup	PROP	1/17/08		
PROP02 Mass Properties	PROP	1/22/08		
L-4 week LDO Database Freeze	ADFD	1/17/08		
RNDZ08 RNDZ Phasing Limits	Orbit	1/21/08		
Prop Analyst & Flt Controller Tag-up	PROP	1/23/08		
ONOR37B Daily Planar/Phase Windows	Orbit	1/23/08		
ASCT04 Uplink APM	ADFD	1/24/08		

Flight Readiness Open Work - Continued

Work Item	Responsible	Due Date	Closed	Closure Rationale
USA Flight Design Standard Open Work - Continued:				
NAVO16B GPO COTM Data Pack	Navigation	1/24/08		
NAVO18B GPO/ONAV Ops Memo	Navigation	1/24/08		
ONOR27 Launch and Landing Data	Orbit	1/25/08		
LDO: L-3 week LDO Checkout/TCDDT Sim	ADFD	1/27/08		
ASCT44 DOL Uplink I-loads	ADFD	1/30/08		
ONOR29C RNDZ Launch Target Data	Orbit	2/5/08		
Dial Down Decision FIDP	FDM	2/6/08		
RNDZ/FDO Phasing Plan Meeting	Orbit	2/6/08		
DSCT17 Landing Site Tables	ADFD	2/7/08		
ONOR37C Daily Planar/Phase Windows	Orbit	2/7/08		
RNDZ02 Target Drag Characteristics	Orbit	2/7/08		
PROP00A PROP/Ascent Aborts Tagup	PROP	2/7/08		
C-Band tracking Scheduling Message	Navigation	2/7/08		
ASCT99 OMS Assist - ATO Update	ADFD	2/8/08		
RNDZ09 Rendezvous COLA Plans	Orbit	2/8/08		
PROP02A DOL Mass Properties Updates	PROP	2/9/08		

Flight Readiness Open Work - Continued

Work Item	Responsible	Due Date	Closed	Closure Rationale
USA Flight Design Standard Open Work - Continued:				
Pre-Launch Mass Properties Request	PROP	2/9/08		
PROP31 ARD Data	PROP	2/9/08		
PROP33 Ferry Data Package	PROP	2/9/08		
PROP34 MCC Data	PROP	2/9/08		
ASCT42 Collision Avoidance Data	ADFD	2/11/08		
ASCT47 Final MCC Trajectory Inputs	ADFD	2/11/08		
DSCT66 Real-Time Support Files	ADFD	2/11/08		
Range Safety Launch Window Cutout	ADFD	2/11/08		
Flight Annex	Navigation	2/11/08		
SRB and ET RTLS Impact Point Update Memo	ADFD	2/11/08		
ASAB32B AME MCC Support Tables	ADFD	2/12/08		
L-2 day DOLILU System Checkout	ADFD	2/12/08		
DSCT05 Maximum Crossrange Capability	ADFD	2/12/08		
ASAB25 ARD Bias Tables	ADFD	2/13/08		

Flight Readiness Open Work - Continued

Work Item	Responsible	Due Date	Closed	Closure Rationale
USA Flight Design Non-Standard Open Work:				
FDD AR 2007-CAF062 Implementation	Navigation	1/4/08	1/4/08	Flight-specific work completed
FDD AR 2007-CAF078 Implementation	Navigation	1/4/08	1/4/08	Flight-specific work completed
TAO Certification – C. Bupane	Navigation	1/14/08		
DOL OPS 2 Operator Certification	ADFD	1/24/08		
DOL Lead Operator Certification	ADFD	STS-122 launch		
Landing Analyst Certification	ADFD	1/24/08		
LOADS 6.1 Flight Critical Certification Review	ADFD	TBD		
DDS element update	ADFD	TBD		
NSTS08329 Vol. VI update	ADFD	TBD		
PRD update for range balloons	ADFD	TBD		
DOL Block Update to be completed by approval at SICB	ADFD	TBD		

Flight Readiness Open Work - Continued

Item	Responsible	Due Date	Closed	Closure Rationale/Status
Trajectory Operations Standard Open Work				
Close to Launch Trajectory Data	OFDO	1/10/08		
L-30 HA Server Audit	TOCSS	1/15/08		
TCDT Checkout in Ops Cert Mode	AE GPO	1/29/08		
DOD Support Readiness	LSO	1/30/08		
Flight Load Checklist Complete	Nav	1/31/08		
Flight Load Checklist Complete	DOLILU	1/31/08		
Flight Load Checklist Complete	Entry Support	1/31/08		
Flight Load Checklist Complete	Orbit-RNDZ	1/31/08		
Flight Load Checklist Complete	RGPO	1/31/08		
Flight Load Checklist Complete	AE FDO	1/31/08		
Flight Load Checklist Complete	AE GPO	1/31/08		
Flight Load Checklist Complete	LSO	1/31/08		
FS Orbit FDO CHB Annex	OFDO	2/1/08		

Flight Readiness Open Work - Continued

Item	Responsible	Due Date	Closed	Closure Rationale/Status
Trajectory Operations Standard Open Work				
PERA Pre-Flight Product	DM42 PERA Lead	2/7/08		
Flight Load Checklist Complete	OFDO	2/8/08		
L-5 HA Server Audit	TOCSS	2/9/08		
Present new ops notes at Trench tagup	TOCSS	Trench Tag-Up		
Close to Launch Mass Properties	OFDO	2/11/08		
Real-time Data Transfer Schedule	OFDO	2/13/08		
Cargo Transfer Spreadsheet	OFDO	2/13/08		
Trajectory Operations Non-Standard Work:				
Entry FDO Certification	AE FDO	1/10/08		
ARD Support Certification	ARD	1/10/08		
ALP LSO Certification	LSO	1/25/08		
Orbit TRAJ Certification	OFDO	TBD		

Flight Readiness Open Work - Concluded

Item	Responsible	Due Date	Closed	Closure Rationale/Status
DM Standard Open Work:				
Orbiter Readiness Statement	FDRIB	1/25/08		
Range Safety Readiness Statement	FDRIB	1/29/08		

- The Flight Design and Dynamics Division has performed a final review and determined all Division and USA FDD open work and/or actions for this mission are closed or acceptable rationale is provided for proceeding with the flight.

 Flight Design Manager
 Date_____

 Chief, Flight Design Requirements and Integration Branch
 Date_____

 Director, Flight Design and Dynamics Department
 Date_____

 Chief, Flight Design and Dynamics Division
 Date_____

Launch Day/Time Summary

GMT Date	GMT Day	GMT Liftoff	Local KSC Time		Local JSC Time	
02/28/08	59	11:17 AM	06:17 AM	EST	05:17 AM	CST
02/29/08	60	10:52 AM	05:52 AM	EST	04:52 AM	CST
03/01/08	61	10:29 AM	05:29 AM	EST	04:29 AM	CST
03/02/08	62	10:03 AM	05:03 AM	EST	04:03 AM	CST
03/03/08	63	09:41 AM	04:41 AM	EST	03:41 AM	CST
03/04/08	64	09:15 AM	04:15 AM	EST	03:15 AM	CST
03/05/08	65	08:53 AM	03:53 AM	EST	02:53 AM	CST
03/06/08	66	08:27 AM	03:27 AM	EST	02:27 AM	CST
03/07/08	67	08:05 AM	03:05 AM	EST	02:05 AM	CST
03/08/08	68	07:39 AM	02:39 AM	EST	01:39 AM	CST
03/09/08	69	07:13 AM	03:13 AM	EDT	01:13 AM	CST
03/10/08	70	06:51 AM	02:51 AM	EDT	01:51 AM	CDT
03/11/08	71	06:25 AM	02:25 AM	EDT	01:25 AM	CDT
03/12/08	72	06:02 AM	02:02 AM	EDT	01:02 AM	CDT
03/13/08	73	05:37 AM	01:37 AM	EDT	12:37 AM	CDT
03/14/08	74	05:14 AM	01:14 AM	EDT	12:14 AM	CDT
03/15/08	75	04:48 AM	12:48 AM	EDT	11:48 PM (3/14/08)	CDT
03/16/08	76	04:26 AM	12:26 AM	EDT	11:26 PM (3/15/08)	CDT
03/17/08	77	04:00 AM	12:00 AM	EDT	11:00 PM (3/16/08)	CDT
03/18/08	78	03:38 AM	11:38 PM (3/17/08)	EDT	10:38 PM (3/17/08)	CDT
03/19/08	79	03:12 AM	11:12 PM (3/18/08)	EDT	10:12 PM (3/18/08)	CDT
03/20/08	80	02:50 AM	10:50 PM (3/19/08)	EDT	09:50 PM (3/19/08)	CDT
03/21/08	81	02:24 AM	10:24 PM (3/20/08)	EDT	09:24 PM (3/20/08)	CDT
03/22/08	82	01:58 AM	09:58 PM (3/21/08)	EDT	08:58 PM (3/21/08)	CDT

Note: Daylight Savings Time begins at 2:00AM Local on March 9.

Training Certification Letter

COPY



Date: December 18, 2007
(Name, Organization, Internal Address)

To: DM/Gregory Oliver
USA/Angie Najarian

Cc: USA/Walter Barnett
DM/Steve Walker
DM/Kim Anson
DM/Barbara Conte

No. VS-07-011
(Name, Organization, Internal Address, Phone)

From: USA/Laurie Labra
USA/Danielle Carelock

Subject: Rndz Training Certification for STS-123

This letter will serve as written confirmation that STS-123 Rendezvous and Proximity Operations Training was completed per the requirements of the Shuttle Crew Training Catalog (DRD 1.6.1.3-a) and all Certification of Flight Readiness (CoFR) endorsements with respect to Crew and Flight Controller Training have been met.

In addition, the NASA Resident Office has completed monitoring of the Space Shuttle Training per the MOD SPOC Surveillance Plan (DA-WI-008) and has detected no problems that impact flight readiness or operations.

A handwritten signature in cursive script, appearing to read "Laurie Labra".

USA/Laurie Labra, Director
Vehicle Systems

A handwritten signature in cursive script, appearing to read "Danielle L. Carelock".

USA/Danielle Carelock, Manager
Shuttle Training